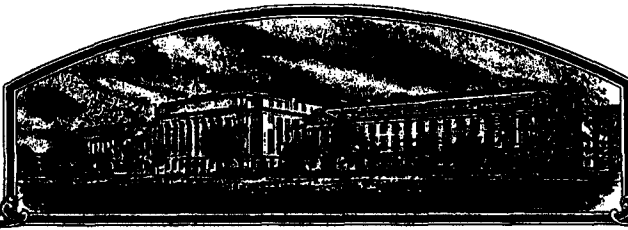


No.

9500213



# THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

**Pioneer Hi-Bred International, Inc.**

Whereas, THERE HAS BEEN PRESENTED TO THE

**Secretary of Agriculture**

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED, PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE FOREGOING PURPOSES, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

CORN

'PHPP8'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this thirty-first day of October in the year of our Lord one thousand nine hundred and ninety-six.

Attest:

*Marsha A. Starnes*  
Commissioner  
Plant Variety Protection Office  
Agricultural Marketing Service

*Jan F. Feltman*  
Secretary of Agriculture

U.S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE  
SCIENCE DIVISION - PLANT VARIETY PROTECTION OFFICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE  
(Instructions and information collection burden statement on reverse)

The following statements are made in accordance with the Privacy Act 1974 (5 U.S.C. 552a).

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S) (as it is to appear on the Certificate)		2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER	3. VARIETY NAME
Pioneer Hi-Bred International, Inc.			PHPP8
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code, and Country)		5. TELEPHONE (include area code)	FOR OFFICIAL USE ONLY PVPO NUMBER 9500213 DATE May 16, 1994 FILING 23254125 DATE 5/16/95/6/6/95 CERTIFICATION FEE 300.00 DATE Sept. 30, 1999
Research & Product Development 7301 NW 62nd Avenue, PO Box 85 Johnston, Iowa 50131-0085		515/270-3300	
		6. FAX (include area code)	
		515/253-2125	
7. GENUS AND SPECIES NAME	8. FAMILY NAME (Botanical)		
Zea mays	Gramineae		
9. CROP KIND NAME (Common name)			
Corn			
10. IF THE APPLICANT NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION (corporation, partnership, association, etc.) (Common name)			
Corporation			
11. IF INCORPORATED, GIVE STATE OF INCORPORATION		12. DATE OF INCORPORATION	
Iowa		May 6, 1926	
13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS			14. TELEPHONE (include area code)
Dr. Bruce D. McBratney Pioneer Hi-Bred International, Inc. Research & Product Development 7301 NW 62nd Avenue, PO Box 85 Johnston, IA 50131-0085			515/270-3300
			15. FAX (include area code)
			515/253-2125
16. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow instructions on reverse)			
a. <input checked="" type="checkbox"/> Exhibit A. Origin and Breeding History of the Variety b. <input checked="" type="checkbox"/> Exhibit B. Statement of Distinctness c. <input checked="" type="checkbox"/> Exhibit C. Objective Description of the Variety d. <input checked="" type="checkbox"/> Exhibit D. Additional Description of the Variety e. <input checked="" type="checkbox"/> Exhibit E. Statement of the Basis of the Applicant's Ownership f. <input checked="" type="checkbox"/> Voucher Sample (2,500 viable untreated seeds or, for tuber propagated varieties verification that tissue culture will be deposited and maintained in a public repository) g. <input checked="" type="checkbox"/> Filing and Examination Fee (\$2,450), made payable to "Treasurer of the United States" (Mail to PVPO)			
17. DOES THE APPLICANT SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY, AS A CLASS OF CERTIFIED SEED? (See Section 83(a) of the Plant Variety Protection Act)?			
<input type="checkbox"/> YES (If "yes," answer items 18 and 19 below) <input checked="" type="checkbox"/> NO (If "no," go to item 20)			
18. DOES THE APPLICANT SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?		19. IF "YES" TO ITEM 18, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED?	
<input type="checkbox"/> YES <input type="checkbox"/> NO		<input type="checkbox"/> FOUNDATION <input type="checkbox"/> REGISTERED <input type="checkbox"/> CERTIFIED	
20. HAS THE VARIETY OR A HYBRID PRODUCED FROM THE VARIETY BEEN RELEASED, USED, OFFERED FOR SALE, OR MARKETING IN THE U.S. OR OTHER COUNTRIES?			
<input type="checkbox"/> YES (If "yes," give names of countries and dates) <input checked="" type="checkbox"/> NO			
21. The applicant(s) declare that a viable sample of basic seed of the variety will be furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate.			
The undersigned applicant(s) is(are) the owner(s) of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.			
Applicant(s) is(are) informed that false representation herein can jeopardize protection and result in penalties.			
SIGNATURE OF APPLICANT (Owner(s))		SIGNATURE OF APPLICANT (Owner(s))	
		Bruce D. McBratney	
NAME (Please print or type)		NAME (Please print or type)	
Pioneer Hi-Bred International, Inc.		Dr. Bruce D. McBratney	
CAPACITY OR TITLE	DATE	CAPACITY OR TITLE	DATE
		Herbicide Resistant Research Manager	May 31, 1994

## 14A. Exhibit A. Origin and Breeding History

Pedigree: PHP55/PHR03)X311123

Pioneer Line PHPP8, Zea mays L., a yellow corn inbred, was developed by Pioneer Hi-Bred International, Inc. from the single cross PHP55 X PHR03 using the pedigree method of breeding. The progenitors of PHPP8 are proprietary inbred lines of Pioneer Hi-Bred International, Inc. Selfing and selection were practiced within the above F1 cross for 2 generations in the development of PHPP8 at North Platte, NE. During line development, crosses were made to inbred testers for the purpose of estimating the line's combining ability. Yield trials were grown at North Platte, NE as well as other Pioneer research stations. After initial testing, additional hybrid combinations have been evaluated and subsequent generations of the line have been grown and hand-pollinated with observations made for uniformity.

PHPP8 has shown uniformity and stability for all traits as described in Exhibit C - "Objective Description of Variety". It has been self-pollinated and ear-rowed 6 generations with careful attention paid to uniformity of plant type to assure genetic homozygosity and phenotypic stability. The line has been increased both by hand and in isolated fields with continued observations for uniformity.

No variant traits have been observed or are expected in PHPP8.

The criteria used in the selection of PHPP8 were yield, both per se and in hybrid combinations; kernel size, especially important in production; ability to germinate in adverse conditions; number of tillers, especially important in production because having numerous tillers increases hybrid production costs spent on detasseling; disease and insect resistance; pollen yield; tassel size; pollen shed duration.

## DEVELOPMENTAL HISTORY FOR PHPP8

<u>Season/Year</u>	<u>Inbreeding Level</u>
Summer 1987	F0
Winter 1988	F1
Summer 1988	F2*
Summer 1989	F3
Summer 1990	F4
Summer 1991	F5
Winter 1992	F6
Summer 1992	F7
Summer 1993	F8**

\*PHPP8 was selfed and selected through F2 generation.

\*\*PHPP8 was selfed and ear-rowed from F3 through F8 generations.

**Exhibit B. Distinctness Statement**

PHPP8 is most similar to the Pioneer Hi-Bred International, Inc. proprietary inbred line PHG84 (PVP Certificate No. 8600130). The leaves of PHPP8 have many longitudinal creases whereas PHG84 leaves have no longitudinal creases.

The inbreds PHPP8 and PHG84 differ in the following traits (Attachment A):

TRAIT	PHPP8		PHG84	
	Mean	Sample Size	Mean	Sample Size
Bushels/Acre	72.1	7	10.0	7
Early Stand Count	37.6	44	22.8	44
GDU Shed	1456	12	1706	12
GDU Silk	1508	12	1753	12
Pollen Score	4.8	4	7.3	4
Staygreen	4.8	12	7.3	12

United States Department of Agriculture, Agricultural Marketing Service  
Science Division, Plant Variety Protection Office  
National Agricultural Library Building, Room 500  
Beltsville, MD 20705

OBJECTIVE DESCRIPTION OF VARIETY  
CORN (*Zea mays* L.)

Name of Applicant(s) <b>Pioneer Hi-Bred International, Inc.</b>	Variety Seed Source	Variety Name or Temporary Designation <b>PHPP8</b>																														
Address (Street & No., or R.F.D. No., City, State, Zip Code and Country) <b>7301 N.W. 62nd Avenue, PO Box 85 Johnston, IA 50131-0085 USA</b>		FOR OFFICIAL USE PVP Number <b>9500213</b>																														
Place the appropriate number that describes the varietal characters typical of this inbred variety in the spaces below. Right justify whole numbers by adding leading zeroes if necessary. Completeness should be striven for to establish an adequate variety description. Traits designated by a '*' are considered necessary for an adequate variety description and must be completed.																																
<p>COLOR CHOICES (Use in conjunction with Munsell color code to describe all color choices; describe #25 and #26 in Comments section):</p> <table> <tr> <td>01=Light Green</td> <td>06=Pale Yellow</td> <td>11=Pink</td> <td>16=Pale Purple</td> <td>21=Buff</td> </tr> <tr> <td>02=Medium Green</td> <td>07=Yellow</td> <td>12=Light Red</td> <td>17=Purple</td> <td>22=Tan</td> </tr> <tr> <td>03=Dark Green</td> <td>08=Yellow-Orange</td> <td>13=Cherry Red</td> <td>18=Colorless</td> <td>23=Brown</td> </tr> <tr> <td>04=Very Dark Green</td> <td>09=Salmon</td> <td>14=Red</td> <td>19=White</td> <td>24=Bronze</td> </tr> <tr> <td>05=Green-Yellow</td> <td>10=Pink-Orange</td> <td>15=Red &amp; White</td> <td>20=White Capped</td> <td>25=Variegated (Describe)</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td>26=Other (Describe)</td> </tr> </table>			01=Light Green	06=Pale Yellow	11=Pink	16=Pale Purple	21=Buff	02=Medium Green	07=Yellow	12=Light Red	17=Purple	22=Tan	03=Dark Green	08=Yellow-Orange	13=Cherry Red	18=Colorless	23=Brown	04=Very Dark Green	09=Salmon	14=Red	19=White	24=Bronze	05=Green-Yellow	10=Pink-Orange	15=Red & White	20=White Capped	25=Variegated (Describe)					26=Other (Describe)
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				26=Other (Describe)																												
<p>STANDARD INBRED CHOICES (Use the most similar (in background and maturity) of these to make comparisons based on grow-out trial data):</p> <table> <tr> <td>Yellow Dent Families:</td> <td>Yellow Dent (Unrelated):</td> <td>Sweet Corn:</td> </tr> <tr> <td>Family Members</td> <td>Co109, ND246,</td> <td>C13, Iowa5125, P39, 2132</td> </tr> <tr> <td>B14 CM105, A632, B64, B68</td> <td>Oh7, T232</td> <td></td> </tr> <tr> <td>B37 B37, B76, H84</td> <td>W117, W153R</td> <td>Popcorn:</td> </tr> <tr> <td>B73 N192, A679, B73, NC268</td> <td>W182BN</td> <td>SG1533, 4722, HP301, HP7211</td> </tr> <tr> <td>C103 Mo17, Va102, Va35, A682</td> <td></td> <td></td> </tr> <tr> <td>Oh43 A619, MS71, H99, Va26</td> <td>White Dent:</td> <td>Pipecorn:</td> </tr> <tr> <td>WF9 W64A, A554, A654, Pa91</td> <td>CI66, H105, Ky228</td> <td>Mo15W, Mo16W, Mo24W</td> </tr> </table>			Yellow Dent Families:	Yellow Dent (Unrelated):	Sweet Corn:	Family Members	Co109, ND246,	C13, Iowa5125, P39, 2132	B14 CM105, A632, B64, B68	Oh7, T232		B37 B37, B76, H84	W117, W153R	Popcorn:	B73 N192, A679, B73, NC268	W182BN	SG1533, 4722, HP301, HP7211	C103 Mo17, Va102, Va35, A682			Oh43 A619, MS71, H99, Va26	White Dent:	Pipecorn:	WF9 W64A, A554, A654, Pa91	CI66, H105, Ky228	Mo15W, Mo16W, Mo24W						
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**COMMENTS**

Color choice noted as a 26 indicates this trait was observed and recorded as green.

Data for Items 1, 3, 4, 5, 6, 7a, 7b, 8, and 9 is based primarily on a maximum of 12 reps from Johnston, Iowa, grown in 1993 and 1994, plus description information from the maintaining station.

## EXHIBIT C - PHPP8

1. TYPE: (describe intermediate types in Comments section): * <u>2</u> 1=Sweet 2=Dent 3=Flint 4=Flour 5=Pop 6=Ornamental 7=Pipecorn			Standard Inbred Name <u>B73</u>		
2. REGION WHERE DEVELOPED IN THE U.S.A.: * <u>2</u> 1=Northwest 2=Northcentral 3=Northeast 4=Southeast 5=Southcentral 6=Southwest 7=Other _____			Standard Seed Source <u>AD93058077</u>		
3. MATURITY (In Region of Best Adaptability; show Heat Unit formula in "Comments" section): DAYS      HEAT UNITS * <u>70</u> <u>1470.0</u> From emergence to 50% of plants in silk * <u>70</u> <u>1420.0</u> From emergence to 50% of plants in pollen <u>6</u> <u>119.0</u> From 10% to 90% pollen shed *              From 50% silk to optimum edible quality _____ From 50% silk to harvest at 25% moisture			DAYS      HEAT UNITS <u>69</u> <u>1557.0</u> <u>69</u> <u>1552.0</u> <u>5</u> <u>119.0</u> _____      _____ _____      _____		
4. PLANT: Standard      Sample Deviation      Size * <u>248.0</u> cm Plant Height (to tassel tip) <u>18.33</u> <u>300</u> * <u>86.0</u> cm Ear Height (to base of top ear node) <u>10.12</u> <u>300</u> <u>17.0</u> cm Length of Top Ear Internode <u>1.63</u> <u>30</u> <u>0.0</u> Average Number of Tillers <u>3.27</u> <u>300</u> <u>1.0</u> Average Number of Ears per Stalk <u>0.00</u> <u>300</u> <u>2</u> Anthocyanin of Brace Roots: 1=Absent 2=Faint 3=Moderate 4=Dark <u>4</u>			Standard      Sample Deviation      Size <u>238.0</u> <u>15.62</u> <u>150</u> <u>99.0</u> <u>8.33</u> <u>150</u> <u>16.0</u> <u>1.73</u> <u>15</u> <u>0.0</u> <u>0.00</u> <u>150</u> <u>1.0</u> <u>0.00</u> <u>150</u> <u>4</u>		
5. LEAF: Standard      Sample Deviation      Size * <u>9.0</u> cm Width of Ear Node Leaf <u>0.63</u> <u>30</u> * <u>84.0</u> cm Length of Ear Node Leaf <u>2.32</u> <u>30</u> * <u>5</u> Number of leaves above top ear <u>0.41</u> <u>30</u> <u>16</u> Degrees Leaf Angle (measure from 2nd leaf above ear at anthesis to stalk above leaf) <u>4.18</u> <u>30</u> <u>02</u> Leaf Color (Munsell code <u>5GY 4/6</u> ) <u>1</u> Leaf Sheath Pubescence (Rate on scale from 1=none to 9=like peach fuzz) <u>4</u> Marginal Waves (Rate on scale from 1=none to 9=many) <u>6</u> Longitudinal Creases (Rate on scale from 1=none to 9=many)			Standard      Sample Deviation      Size <u>9.0</u> <u>0.58</u> <u>15</u> <u>82.0</u> <u>2.52</u> <u>15</u> <u>6</u> <u>0.58</u> <u>15</u> <u>12</u> <u>2.89</u> <u>15</u> <u>03</u> (Munsell Code <u>5GY 3/4</u> ) <u>1</u> <u>4</u> <u>8</u>		
6. TASSEL: Standard      Sample Deviation      Size * <u>12</u> Number of Primary Lateral Branches <u>1.64</u> <u>30</u> <u>42</u> Branch Angle from Central Spike <u>2.74</u> <u>30</u> * <u>26.0</u> cm Tassel Length (from top leaf collar to tassel tip) <u>1.75</u> <u>30</u> <u>5</u> Pollen Shed (rate on scale from 0=male sterile to 9=heavy shed) <u>11</u> Anther Color (Munsell code <u>10RP 4/6</u> ) <u>26</u> Glume Color (Munsell code <u>5GY 6/8</u> ) <u>green</u> <u>1</u> Bar Glumes (Glume Bands): 1=Absent 2=Present			Standard      Sample Deviation      Size <u>9</u> <u>1.00</u> <u>15</u> <u>8</u> <u>2.89</u> <u>15</u> <u>25.0</u> <u>1.15</u> <u>15</u> <u>7</u> <u>07</u> (Munsell code <u>10YR 8/6</u> ) <u>26</u> (Munsell code <u>5GY 4/8</u> ) <u>green</u> <u>1</u>		

## 7a. EAR (Unhusked Data):

- 11 Silk Color (3 days after emergence) (Munsell code 10RP 4/6)  
01 Fresh Husk Color (25 days after 50% silking) (Munsell code 5GY 6/6)  
21 Dry Husk Color (65 days after 50% silking) (Munsell code 10YR 8/4)  
1 Position of Ear at Dry Husk Stage: 1=Upright 2=Horizontal 3=Pendent  
5 Husk Tightness (Rate on scale from 1=very loose to 9=very tight)  
2 Husk extension (at harvest): 1=Short (ears exposed) 2=Medium (<8 cm)  
 3=Long (8=10 cm beyond ear tip) 4=Very Long (>10 cm)

- 07 (Munsell code 2.5GY 9/6)  
01 (Munsell code 5GY 6/6)  
21 (Munsell code 10YR 9/4)

1  
7  
3

10Y 9/4

5.  
9

## 7b. EAR (Husked Ear Data):

Standard Sample  
Deviation Size

- \* 18.0 cm Ear Length 1.17 30  
 \* 42.0 mm Ear Diameter at mid-point 1.51 30  
134.0 gm Ear Weight 24.03 30  
16 Number of Kernel Rows 0.52 30  
2 Kernel Rows: 1=Indistinct 2=Distinct  
1 Row Alignment: 1=Straight 2=Slightly Curved 3=Spiral  
 \* 11.0 cm Shank Length 1.67 30  
2 Ear Taper: 1=Slight 2=Average 3=Extreme

Standard Sample  
Deviation Size

- 14.0 0.58 15  
45.0 3.46 15  
132.0 41.62 15  
17 1.00 15  
2  
1  
9.0 1.15 15  
1

## 8. KERNEL (Dried):

Standard Sample  
Deviation Size

- 11.0 mm Kernel Length 0.74 30  
8.0 mm Kernel Width 0.55 30  
4.0 mm Kernel Thickness 0.52 30  
22.0 % Round Kernels (Shape Grade) 4.27 20  
1 Aleurone Color Pattern: 1=Homozygous 2=Segregating  
 (\*) 07 Aleurone Color (Munsell code 10YR 7/14)  
 \* 07 Hard Endosperm color (Munsell code 10YR 6/12)  
 \* 3 Endosperm Type: 1=Sweet (Sul) 2=Extra Sweet (sh2) 3=Normal Starch  
 4=High Amylose Starch 5=Waxy Starch 6=High Protein  
 7=High Lysine 8=Super Sweet (se) 9=High Oil  
 10=Other \_\_\_\_\_  
24.0 gm Weight per 100 Kernels (unsized sample) 3.67 30

Standard Sample  
Deviation Size

- 11.0 1.15 15  
8.0 0.58 15  
5.0 1.15 15  
25.0 17.68 15  
1 \_\_\_\_\_  
07 (Munsell code 2.5Y 8/12)  
07 (Munsell code 10YR 7/14)  
3 \_\_\_\_\_

## 9. COB:

Standard Sample  
Deviation Size

- 24.0 mm Cob Diameter at mid-point 1.55 30  
14 Cob Color (Munsell code 10R 5/6)

Standard Sample  
Deviation Size

- 27.0 1.53 15  
14 (Munsell code 10R 5/8)



10. DISEASE RESISTANCE (Rate from 1 (most susceptible) to 9 (most resistant); leave blank if not tested; leave Race or Strain Options blank if polygenic):

A. Leaf Blights, Wilts, and Local Infection Diseases

— Anthracnose Leaf Blight ( <u>Colletotrichum graminicola</u> )	—	
5 Common Rust ( <u>Puccinia sorghi</u> )	6	
— Common Smut ( <u>Ustilago maydis</u> )	—	
5 Eyespot ( <u>Kabatiella zeae</u> )	4	
8 Goss's Wilt ( <u>Clavibacter michiganense</u> spp. <u>nebraskense</u> )	7	
4 Gray Leaf Spot ( <u>Cercospora zeae-maydis</u> )	3	
— Helminthosporium Leaf Spot ( <u>Bipolaris zeicola</u> ) Race _____		Race _____
5 Northern Leaf Blight ( <u>Exserohilum turcicum</u> ) Race _____	3	Race _____
4 Southern Leaf Blight ( <u>Bipolaris maydis</u> ) Race _____	2	Race _____
— Southern Rust ( <u>Puccinia polysora</u> )	—	
— Stewart's Wilt ( <u>Erwinia stewartii</u> )	4	
— Other (Specify) _____	—	

B. Systemic Diseases

3 Corn Lethal Necrosis (MCMV and MDMV)	3	
— Head Smut ( <u>Sphacelotheca reiliana</u> )	—	
— Maize Chlorotic Dwarf Virus (MDV)	—	
— Maize Chlorotic Mottle Virus (MCMV)	—	
3 Maize Dwarf Mosaic Virus (MDMV) Strain <u>A</u>	3	Strain <u>A</u>
— Sorghum Downy Mildew of Corn ( <u>Peronosclerospora sorghi</u> )	—	
— Other (Specify) _____	—	

C. Stalk Rots

3 Anthracnose Stalk Rot ( <u>Colletotrichum graminicola</u> )	—	
— Diplodia Stalk Rot ( <u>Stenocarpella maydis</u> )	—	
— Fusarium Stalk Rot ( <u>Fusarium moniliforme</u> )	—	
— Gibberella Stalk Rot ( <u>Gibberella zeae</u> )	—	
— Other (Specify) _____	—	

D. Ear and Kernel Rots

— Aspergillus Ear and Kernel Rot ( <u>Aspergillus flavus</u> )	—	
— Diplodia Ear Rot ( <u>Stenocarpella maydis</u> )	—	
6 Fusarium Ear and Kernel Rot ( <u>Fusarium moniliforme</u> )	6	
7 Gibberella Ear Rot ( <u>Gibberella zeae</u> )	6	
— Other (Specify) _____	—	

11. INSECT RESISTANCE (Rate from 1 (most susceptible) to 9 (most resistant); (leave blank if not tested):

Standard Sample  
Deviation Size

Standard Sample  
Deviation Size

   Banks grass Mite (Oligonychus pratensis)

   Corn Worm (Helicoverpa zea)

   Leaf Feeding

   Silk Feeding

   mg larval wt.

   Ear Damage

   Corn Leaf Aphid (Rhopalosiphum maidis)

   Corn Sap Beetle (Carpophilus dimidiatus)

   European Corn Borer (Ostrinia nubilalis)

   1<sup>st</sup> Generation (Typically Whorl Leaf Feeding)

   2<sup>nd</sup> Generation (Typically Leaf Sheath-Collar Feeding)

   Stalk Tunneling

   27.0cm tunneled/plant

   Fall Armyworm (Spodoptera frugiperda)

   Leaf Feeding

   Silk Feeding

   mg larval wt.

   Maize Weevil (Sitophilus zeamais)

   Northern Rootworm (Diabrotica barberi)

   Southern Rootworm (Diabrotica undecimpunctata)

   Southwestern Corn Borer (Diatraea grandiosella)

   Leaf Feeding

   Stalk Tunneling

   cm tunneled/plant

   Two-spotted Spider Mite (Tetranychus urticae)

   Western Rootworm (Diabrotica virgifera virgifera)

   Other (Specify)   

12. AGRONOMIC TRAITS:

   4 Staygreen (at 65 days after anthesis) (Rate on a scale from 1=worst to excellent)

   0.0 % Dropped Ears (at 65 days after anthesis)

   % Pre-anthesis Brittle Snapping

   % Pre-anthesis Root Lodging

   Post-anthesis Root Lodging (at 65 days after anthesis)

4990.0 Kg/ha Yield of Inbred Per Se (at 12-13% grain moisture)

13. MOLECULAR MARKERS: (0=data unavailable; 1=data available but not supplied; 2=data supplied)

   1 Isozymes

   0 RFLP's

   0 RAPD's

COMMENTS (eg. state how heat units were calculated, standard inbred seed source, and/or where data was collected. Continue in Exhibit D):

## CLARIFICATION OF DATA IN EXHIBITS C AND D

Please note the data presented in Exhibit C, "Objective Description of Variety," is data collected primarily at Johnston, Iowa plus description information from the maintaining station. The data in Exhibit D, "Additional Description of Variety," is data from comparisons of inbreds grown in the same tests in the adapted growing area of PHPP8.

## ATTACHMENT A

P A I R E D C O M P A R I S O N R E P O R T  
 C O R N R E S E A R C H V A R I E T Y P A I R 1 O F 1  
 V A R I E T Y # 1 - P H P P 8  
 V A R I E T Y # 2 - P H G 8 4

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\* = 10% SIG + = 5% SIG # = 1% SIG

YEAR	VAR #	BU ACR	BU ABS	ACR	MST	WT	TST	SDG	EST	TIL	GDU	SHD	SLK	POL	TAS	PLT	HT	HT	HT	RT	LDG	GRN	STA	STK	GRN	SCT	GRN	SZ	ABS
92	1	57.3	112	20.2	56.8	4.8	35.0	2.0	1440	1483	8.8	1440	1504	4.8	5.4	67.8	30.5	100.0	87.5	8.5	7.0								
	2	12.0	23	22.0	55.8	1.1	27.5	2.5	1670	1690	0.0	1642	1714	7.3	5.6	69.0	24.3	100.0	50.0	4.8	5.0								
	LOCS	2	2	2	2	4	7	3	2	2	5	5	5	4	5	4	4	4	1	1	4	1							
	REPS	4	4	4	4	7	31	6	3	3	5	5	5	4	5	4	4	4	1	1	4	1							
	PROB	.076*	.079*	.556	.447	.013+	.058*	.394	.083*	.054*	.314	.247	.011+	.009#	.030+	.847	.754	.229											
93	1	57.3	112	20.2	56.8	4.8	35.0	2.0	1440	1483	8.8	1440	1504	4.8	5.4	67.8	30.5	100.0	87.5	8.5	7.0								
	2	12.0	23	22.0	55.8	1.1	27.5	2.5	1670	1690	0.0	1642	1714	7.3	5.6	69.0	24.3	100.0	50.0	4.8	5.0								
	LOCS	2	2	2	2	4	7	3	2	2	5	5	5	4	5	4	4	4	1	1	4	1							
	REPS	4	4	4	4	7	31	6	3	3	5	5	5	4	5	4	4	4	1	1	4	1							
	PROB	.076*	.079*	.556	.447	.013+	.058*	.394	.083*	.054*	.314	.247	.011+	.009#	.030+	.847	.754	.229											
94	1	91.0	119	20.7	58.1	7.2	43.3	10.2	1510	1545	8.8	1440	1504	4.8	5.4	67.8	30.5	100.0	87.5	8.5	7.0								
	2	9.1	12	21.4	57.8	1.0	8.3	0.0	1900	1915	0.0	1642	1714	7.3	5.6	69.0	24.3	100.0	50.0	4.8	5.0								
	LOCS	1	1	1	1	3	3	2	2	2	5	5	5	4	5	4	4	4	1	1	4	1							
	REPS	2	2	2	2	6	6	4	4	4	5	5	5	4	5	4	4	4	1	1	4	1							
	PROB	.001#	.024+	.262	.113	.094*	.001#	.024+	.262	.113	.094*	.001#	.024+	.262	.113	.094*	.001#	.024+	.262	.113	.094*	.001#	.024+	.262	.113	.094*	.001#	.024+	.262
95	1	82.7	150	15.0	15.0	4.5	49.0	2.2	2.2	2.2	8.8	1440	1504	4.8	5.4	67.8	30.5	100.0	87.5	8.5	7.0								
	2	7.0	13	15.0	15.0	1.0	1.0	0.0	0.0	0.0	0.0	1642	1714	7.3	5.6	69.0	24.3	100.0	50.0	4.8	5.0								
	LOCS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1							
	REPS	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2							
	PROB	.001#	.024+	.262	.113	.094*	.001#	.024+	.262	.113	.094*	.001#	.024+	.262	.113	.094*	.001#	.024+	.262	.113	.094*	.001#	.024+	.262	.113	.094*	.001#	.024+	.262
96	1	82.7	150	15.0	15.0	4.5	49.0	2.2	2.2	2.2	8.8	1440	1504	4.8	5.4	67.8	30.5	100.0	87.5	8.5	7.0								
	2	7.0	13	15.0	15.0	1.0	1.0	0.0	0.0	0.0	0.0	1642	1714	7.3	5.6	69.0	24.3	100.0	50.0	4.8	5.0								
	LOCS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1							
	REPS	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2							
	PROB	.001#	.024+	.262	.113	.094*	.001#	.024+	.262	.113	.094*	.001#	.024+	.262	.113	.094*	.001#	.024+	.262	.113	.094*	.001#	.024+	.262	.113	.094*	.001#	.024+	.262
TOTAL SUM	1	72.1	123	19.0	57.3	4.8	37.6	5.6	1456	1508	4.8	1456	1508	4.8	5.4	80.1	33.8	100.0	83.2	4.5	8.5	7.0							
	2	10.0	18	20.1	56.5	1.2	22.8	0.5	1706	1753	7.3	1706	1753	7.3	5.6	74.6	25.6	100.0	7.3	82.5	4.5	4.8	5.0						
	LOCS	4	4	4	3	13	17	14	9	9	4	9	9	4	5	8	8	8	1	6	6	1	4	1					
	REPS	7	7	7	6	20	44	19	12	12	4	12	12	4	5	12	12	12	1	12	9	2	4	1					
	DIFF	62.1	106	1.1	0.8	3.6	14.8	5.0	250	245	2.5	250	245	2.5	0.2	5.6	8.1	0.0	2.6	0.7	0.0	3.8	2.0						
	PROB	.008#	.003#	.354	.267	.000#	.001#	.068*	.000#	.000#	.030+	.068*	.000#	.030+	.847	.132	.006#		.002#	.934	.065*								

## DEFINITIONS

In the description and examples, a number of terms are used herein. In order to provide a clear and consistent understanding of the specification and claims, including the scope to be given such terms, the following definitions are provided:

**BAR PLT = BARREN PLANTS.** This is the percent of plants per plot that were not barren (lack ears).

**BRT STK = BRITTLE STALKS.** This is a measure of the stalk breakage near the time of pollination, and is an indication of whether a hybrid or inbred would snap or break near the time of flowering under severe winds. Data are presented as percentage of plants that did not snap.

**BU ACR = YIELD (BUSHELS/ACRE).** Actual yield of the grain at harvest adjusted to 15.5% moisture. ABS is in absolute terms and % MN is percent of the mean for the experiments in which the hybrid or inbred was grown.

**DRP EAR = DROPPED EARS.** This is a measure of the number of dropped ears per plot and represents the percentage of plants that did not drop ears prior to harvest.

**EAR HT = EAR HEIGHT.** The ear height is a measure from the ground to the top developed ear node attachment and is measured in centimeters.

**EST CNT = EARLY STAND COUNT.** This is a measure of the stand establishment in the spring and represents the number of plants that emerge on a per plot basis for the hybrid or inbred.

**GDU SHD = GDU TO SHED.** The number of growing degree units (GDUs) or heat units required for an inbred line or hybrid to have approximately 50 percent of the plants shedding pollen and is measured from the time of planting. Growing degree units are calculated by the Barger Method, where the heat units for a 24-hour period are:

$$\text{GDU} = \frac{(\text{Max. temp.} + \text{Min. temp.})}{2} - 50$$

The highest maximum temperature used is 86°F and the lowest minimum temperature used is 50°F. For each inbred or hybrid it takes a certain number of GDUs to reach various stages of plant development.

**GDU SLK = GDU TO SILK.** The number of growing degree units required for an inbred line or hybrid to have approximately 50 percent of the plants with silk emergence from time of planting. Growing degree units are calculated by the Barger Method as given in GDU SHD definition.

**GRN APP. = GRAIN APPEARANCE.** This is a 1 to 9 rating for the general quality of the shelled grain as it is harvested based on such factors as the color of the harvested grain, any mold on the grain, and any cracked grain. High scores indicate good grain quality and low scores indicate poor grain quality.

**MST = HARVEST MOISTURE.** The moisture is the actual percentage moisture of the grain at harvest.

**PLT HT = PLANT HEIGHT.** This is a measure of the height of the plant from the ground to the tip of the tassel in centimeters.

**RT LDG = ROOT LODGING.** Root lodging is the percentage of plants that do not root lodge; plants that lean from the vertical axis at an approximately 30° angle or greater would be counted as rootlodged.

**SDG VGR = SEEDLING VIGOR.** This is the visual rating (1 to 9) of the amount of vegetative growth after emergence at the seedling stage (approximately five leaves). A higher score indicates better vigor and a low score indicates poorer vigor.

**STA GRN = STAY GREEN.** Stay green is the measure of plant health near the time of black layer formation (physiological maturity). A high score indicates better late-season plant health.

**STK LDG = STALK LODGING.** This is the percentage of plants that did not stalk lodge (stalk breakage) as measured by either natural lodging or pushing the stalks and determining the percentage of plants that break below the ear.

**TST WT = TEST WEIGHT UNADJUSTED.** The measure of weight of the grain in pounds for a given volume (bushel).

**ADDITIONAL DEFINITIONS**

**TILLER ABS = TILLERS.** Number of tillers per plot.

**POLSC ABS = POLLEN SHED SCORE.** Rating 1-9; 1 = no pollen, 9 = large amount of pollen.

**TASSZ ABS = TASSEL SIZE SCORE.** Rating 1-9; 1 = small, 9 = large.

**PLHT ABS = PLANT HEIGHT.** Plant height in inches.

**EARHT ABS = EAR HEIGHT.** Ear height in inches.

**EARSZ ABS = EAR SIZE SCORE.** Rating 1-9; 1 = small, 9 = large.

14E. EXHIBIT E. Statement of the Basis of Applicant's Ownership

Pioneer Hi-Bred International, Inc., Des Moines, Iowa, is the employer of the plant breeders involved in the development and evaluation of PHPP8. Pioneer Hi-Bred International, Inc. has the sole rights and ownership of PHPP8.



U.S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE  
SCIENCE AND TECHNOLOGY DIVISION - PLANT VARIETY PROTECTION OFFICE

**EXHIBIT E**  
**STATEMENT OF THE BASIS OF OWNERSHIP**

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S)  Pioneer Hi-Bred International, Inc.	2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER	3. VARIETY NAME  PHPP8
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code, and Country)  7301 NW 62nd Avenue P.O. Box 0085 Johnston, IA 50131-0085	5. TELEPHONE (include area code)  515/270-3300	6. FAX (include area code)  515/253-2125
7. PVPO NUMBER  9500213		

8. Does the applicant own all rights to the variety? Mark an "X" in appropriate block. If no, please explain.

☒ YES ☐ NO

---

9. Is the applicant (individual or company) a U.S. national or U.S. based company?  
If no, give name of country \_\_\_\_\_

☒ YES ☐ NO

---

10. Is the applicant the original breeder? If no, please answer the following:

☒ YES ☐ NO

a. If original rights to variety were owned by individual(s):  
Is (are) the original breeder(s) a U.S. national(s)? If no, give name of country \_\_\_\_\_

☐ YES ☐ NO

b. If original rights to variety were owned by a company:  
Is the original breeder(s) U.S. based company? If no, give name of country \_\_\_\_\_

---

11. Additional explanation on ownership (If needed, use reverse for extra space):

**PLEASE NOTE:**

Plant variety protection can be afforded only to owners (not licensees) who meet one of the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.
2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.
3. If the applicant is an owner who is not the original breeder, both the original breeder and the applicant must meet one of the above criteria.

The original breeder may be the individual or company who directed final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definition.

Public reporting burden for this collection of information is estimated to average 10 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Agriculture, Clearance Officer, OIRM, AG Box 7630, Jamie L. Whitten Building, Washington, D.C. 20250. When replying, refer to OMB No. 0581-0055 and form number in your letter.

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